



Designation: D 3248 – 73 (Reapproved 1984)

Standard Test Method for COEFFICIENT OF STATIC FRICTION OF CORRUGATED AND SOLID FIBERBOARD (INCLINED PLANE METHOD)¹

This standard is issued under the fixed designation D 3248; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the determination of the coefficient of static friction of corrugated and solid fiberboard or of the materials used to make such board.

1.2 The inclined plane is raised until sliding begins. The coefficient of friction is equal to the tangent of the angle at which sliding begins.

1.3 A horizontal plane method is described in Test Method D 3247. Either method gives essentially equivalent results. The choice of approach depends on the equipment available and the means of measurement.

1.4 *This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Applicable Documents

2.1 ASTM Standards:

D 585 Method of Sampling and Accepting a Single Lot of Paper, Paperboard, Fiberboard, or Related Product²

D 685 Method of Conditioning Paper and Paper Products for Testing²

D 2534 Test Method for Coefficient of Kinetic Friction for Wax Coatings³

D 3247 Test Method for Coefficient of Static Friction of Corrugated and Solid Fiberboard (Horizontal Plane Method)²

2.2 Special Technical Publication:

STP 335 Manual for Conducting an Interlaboratory Study of a Test Method⁴

3. Significance and Use

3.1 The coefficient of friction of corrugated and solid fiberboard indicates how containers made from that board will perform in many critical applications. A high coefficient of friction of one surface of board to itself means that containers having that surface will tend to resist sliding in unit loads. A low coefficient may indicate potential problems with the containers slipping from the load.

3.2 The coefficient of friction test is empirical. It describes the condition of that surface at the moment of test. This may or may not relate to the condition of the surface in use. Nevertheless, the test results are useful in determining the properties of the surface tested. Its condition will depend upon the historical treatment of the surface. Because the previous history is unknown, measurement is not made until the third slide. Experience has shown that variability is greatly reduced after the second slide.

4. Definitions

4.1 *coefficient of friction*—the ratio of the frictional force resisting movement of the surface being tested to the force applied normal to that surface (the weight of the material above that surface).

4.2 *kinetic coefficient*—the ratio of the force

¹ This test method is under the jurisdiction of ASTM Committee D-10 on Packaging and is the direct responsibility of Subcommittee D10.17 on Paper and Paperboard Products.

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² *Annual Book of ASTM Standards*, Vol 15.09.

³ *Annual Book of ASTM Standards*, Vol 05.02.

⁴ Available from ASTM Headquarters, 1916 Race St., Philadelphia, PA 19103.